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☞See advertisement on last page.

Poetry.

THE ARTIZAN.

BY WILLIAM D. GALLAGHER.

The day is past;—the quiet night
  Toward its midhour weareth on;
His work-shop has been closed for hours—
  A good day's labour done.
The toil is hard that brings him bread;
  And sometimes scant supply;
When drops awhile his manly head,
  And glistens his full eye.

Yet from the trial shrinks he not,
  For he has youth, and strength, and will;
And though his toil is ill repaid
  Bends daily to it still.
He sometimes murmurs,—but his pride
  Checks his expression at its birth,—
That blessing to his class denied
  Surround the drones of earth.

His calling sometimes takes him where
  Wealth, worth, grace, beauty, all unite;
And lovely tones arrest his ear,
  And lovely looks his sight;—
And much he thinks—and half he sighs—
  Yet ere his welcome work is done,
He longs for home, and Mary's eyes,
  And for his prattling son.

His labor hath been slight to-day;
  And wife and child before him sleep;
And he had passed the half-spent night
  In study close and deep.
The lamp burns dim—the fire is low
  The book is closed wherein he read;
But wildly swell the streams of Thought
  Its fountain-pages fed.

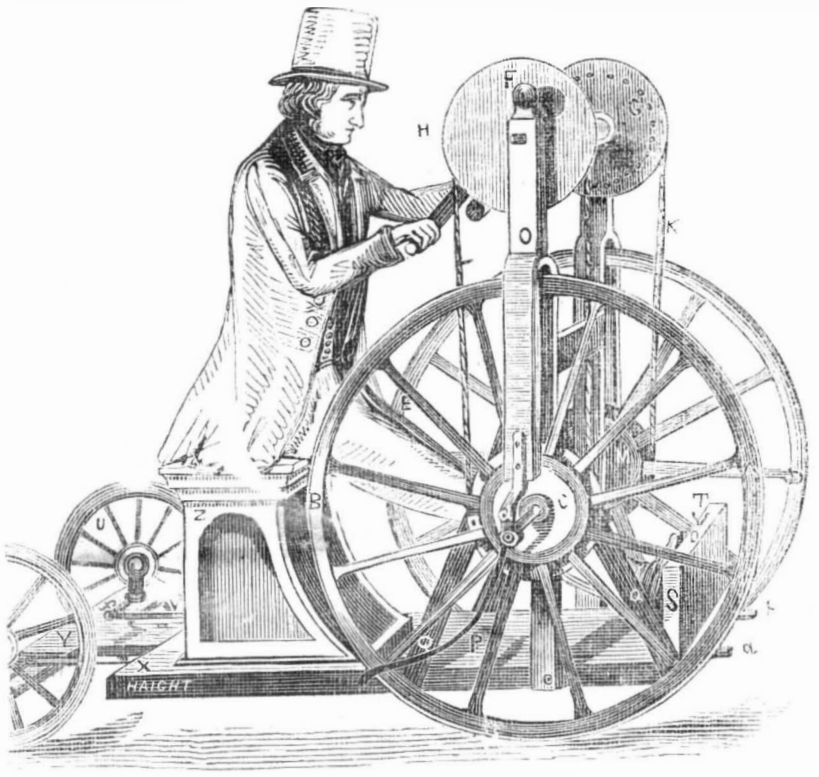
With eyes fixed calmly on the floor,
  But varying and expressive face,
He cons the lesson o'er and o'er—
  The history of his race:
And much he finds of word and deed,
  Whose virtue is example now;
But more that makes his bosom bleed,
  And darkens o'er his brow:—

But chiefly this it is that fills
  The swelling volume of his mind:
The countless wrongs and cruelties
  That have oppressed his kind:
But as he reads Life's riddle still,
  He feels, with sudden change of mood,
The stern, the indomitable will,
  That never was subdued.

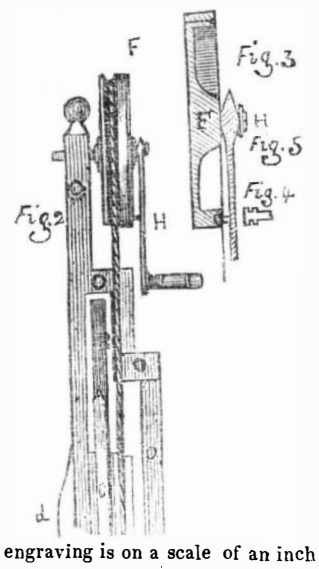
The will, not to destroy, but build!
  Nor the blind Might, of old renoun,
Which took the pillars in its grasp,
  And shook the temple down—
But that whose patient energy
  Works ever upwards, without rest,
Until the pierced and parted sea
  Rolls from its coral breast.

In the dim firelight, for a while,
  His tall form moveth to and fro;
Then by the couch of those he loves,
  He stops, and bendeth low.
Oh, holy love! oh, blessed kiss!
  Ye ask not splendor—bide not power—
But in an humble home like this,
  Ye have your triumph-hour!

PEDEMOTIVE CARRIAGE



Many plans have been tried to propel carriages without the use of horses or steam. Stevenius the celebrated Dutch Engineer was the first to propel carriages by sails on the level roads of Holland. Spencer, of Lithgow, Scotland, was the next to construct a very good hand power carriage, but still it was defective. The objections to all of these machines have been in the difficulty experienced in turning them. The one represented in this engraving, for an account of which we are indebted to Messrs. Barlow, Le Capelain and Payne, Civil Engineers, of London. and proprietors of the Patent Mirror, is the invention of Lewis Gempertz, and may be useful for our plank roads. This is the reason why we have got up this engraving in order to call the attention of our ingenious mechanics to the subject, as we know they but require a hint to put their inventive powers on the right track and something altogether superior is sure to be the result.



The engraving is on a scale of an inch to a foot. It has four wheels, A B and D E being two large ones in front, and W and U two small ones behind. P is the floor of the carriage; and O and I are two upright pillars, strengthened by the pillars O O O O, shown in a side view in Fig. 2; A B C being an end view of the front wheel, which as well as its fellow has a small wheel on the nave; this wheel being concave on its periphery, round which a band K, well rosined, winds twice so as to get a firm grasp and on the top of the pillars are two similar wheels, F and G, round which the band also winds twice.—These wheels have each a handle by which they are turned, and thus turn the carriage wheels. The three elbows O O O, in the pillars, must be to a nicety, so as to leave room for the carriage wheels, also the upper wheels F G, and the handles and hands of the rider. Near P, fig. 1, is a strengthening iron fixed to the crooked iron *d*, at the bottom of the pillar, the other end being attached to the carriage floor; and Z is the seat. The hind wheels U and W are placed on the cross piece Y, which does not, as in a common carriage, turn about the middle, but is a fixture; each end of it having a perpendicular axle, on which works a tube or box attached to the nave of each hind wheel, the nearer the better; or if the hind wheels be dished inwards into a kind of recess, the tubes can be placed directly over the peripheries. By this means the obstacles of the road do not tend to throw the wheels out of their course, and the carriage is secured from upsetting. In order then for these wheels to be guided by the rider, there are two rods X and Y, fig. 1, which are jointed on a projecting piece *f*, attached to the tubes, the other ends of these rods *a b*, being jointed to a footboard T S, which turns horizontally on a long perpendicular axle V; the rider then placing his feet against this board, can turn it either way with ease, so as to guide the hind wheels, which act as a rudder. The heels of the rider may either rest on the floor while his feet move on the ancle joints, or the board may have a ridge for the heels to rest on, so that the legs move instead of the ancle joints. But as in turning a corner, one front wheel must unavoidably move more than the other, the relative positions of the handles would become wrong were the handles affixed on square axles, they are therefore made with round holes, which work on round axles of the wheels; and in order to enable these handles to turn the wheels, the wheels have a number of long taper holes made in them in a flat iron ring, with a vacancy between it and the wheel, and the handles have a pin made, as in fig. 4, which can be placed in any hole and there fix the handles in any position, these handles having a swell at the back as in fig. 5, but being straight the other way, so that while they can be turned in and out of the holes they are still steady. In order to tighten the bands, they each have a loop at their ends, and through which a wire is attached, which can be twisted tight without removing the band.

RAIL ROAD NEWS.

Hudson River Railroad.

By the Report of the Hudson River Railroad which has been published, detailing the progress of that work, the directors account for the increased estimates of the road, first by the exorbitant claims for land damages, and secondly, the change of route from the interior to the river, involving an increased cost of $538,663. That nearly the whole $3,000,000 originally subscribed will be paid in, the directors see no good reason to doubt. It is the intention of the directors to urge the completion of the road, and to put it in operation from New York to Poughkeepsie in the month of May or June 1849; and in the meantime, to commence with the more difficult sections, those that will require the longest time to complete between that place and Hudson, so as to prepare the remainder of the road for opening in the year 1850 or earlier, if possible, and they are happy to state that the progress of the work is such as to afford every reasonable assurance that this will be accomplished. Independently of the $3,000,000 subscribed, the company, have authority, by the amended charter, to borrow $3,000,000, an authority which it is not necessary for the Board to exercise until the $3,000,000 subscribed has been expended on the road. The line has been definitely located from New York City to Poughkeepsie, 74 miles. The general location has been settled from Pough- For superstructure authority which it is not about five miles of the line there is no curve less than 3000 feet radius. The grade from New York city to Greeenbush, a distance of 138.45 miles, has a total rise and fall of 213.5 feet. The plan for grading is, to provide for a double track to Poughkeepsie and a single track thence to Albany. For superstructure of a single track throughout, with 25 miles double at the depots, and for the meeting of through train, the estimate is for grading and superstructure $6,235,748. Expenses for land with depots, engines and cars necessary to commence business, will cost probably a million more. There now about 3000 men at work on the line. It is expected there will be at least 4000 men on the line in the course of a month.

London and South-Western Railway.

The York Road Extension of the London and South-western Railway, England, was opened recently. The construction of the line has been most expensive, the *two miles of railway having cost no less than a million and a half of money*. It has occupied about two years and a half in its construction. This Railway extension may be deemed to surpass any other in the world for expense of construction. It appears almost incredible that such a sum could be expended on two miles of railroad.

Railroad Tunnel.

The project of passing through Hoosic Mountain, near Adams, Mass. by a tunnel four miles long, and thus securing an almost level Railroad from Greenfield on the Connecticut river to Troy, N. Y. (one of the most hilly and apparently impracticable sections to be found in New England,) has excited considerable attention, but which we think will end in the abandonment of the project.

A good route for a Railroad track can be found up the Green Mountain from Troy, on a grade of 45 feet to the mile, and no Tunnel; this road would cost, say $3,000,000. It would be built and fully pay for itself, before the Adams tunnel could be done.

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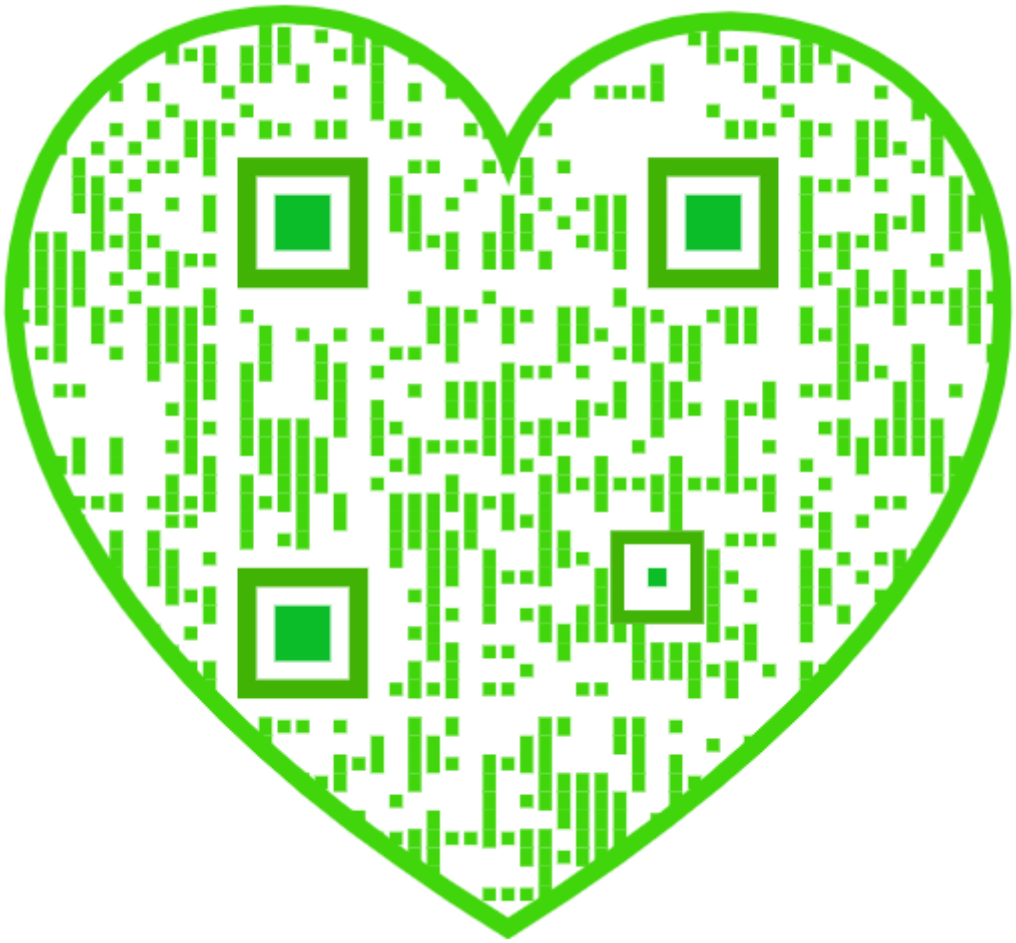

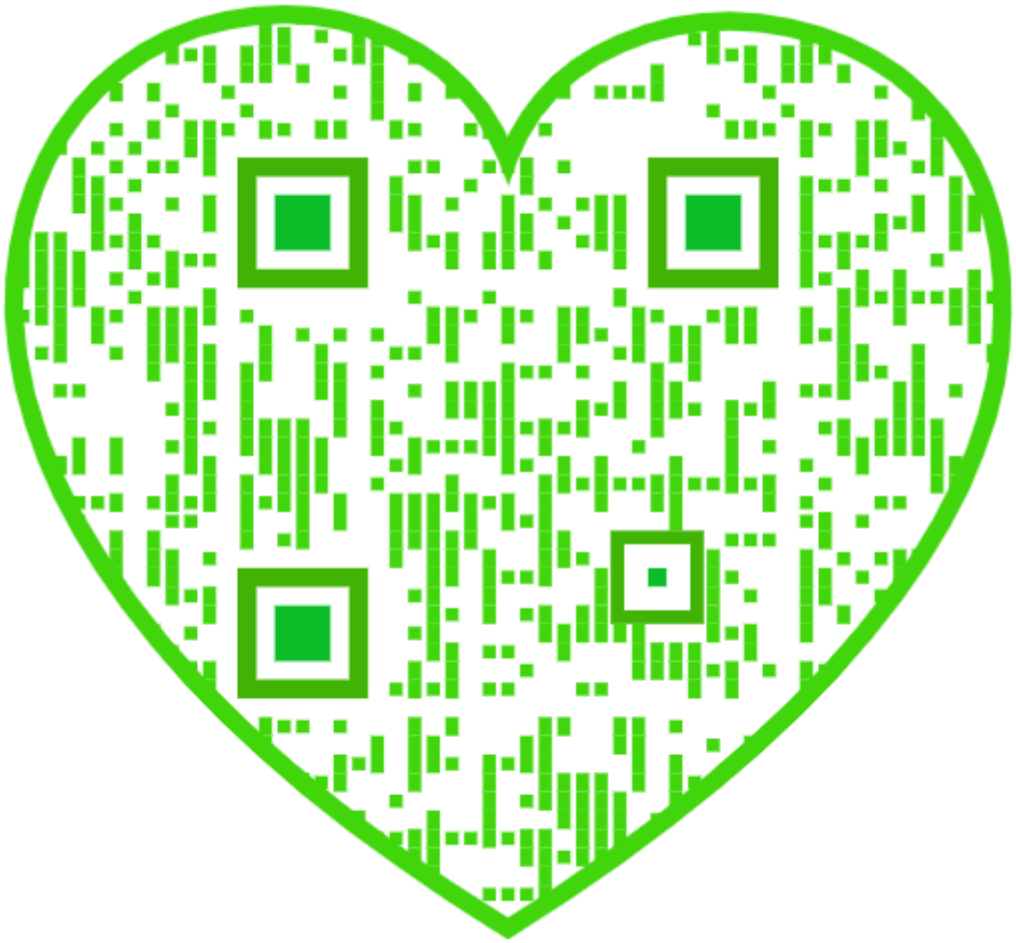

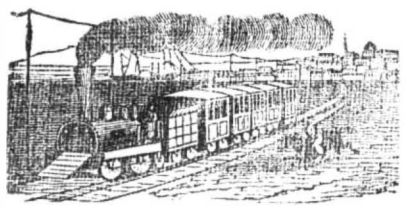

Important Telegraphic Improvement.

The Baltimore Sun notices an Electro-Magnetic Registering Machine, which overcomes the hitherto supposed impossibility of registering legible and durable communications by means of the primary current alone. The inventor has charge of a telegraphic station in the State of New York, where he has had his instrument working for some time, being merely connected with the main line of wire, hence doing away with all the trouble and expense of a local battery. A common metallic pen is firmly fixed in a holder, and is fed with ink by a most ingenious contrivance, while the fillet of paper is drawn under it at a short distance below the point, while a nicely balanced lever, acted upon by a electro-magnet placed within the primary current, communicates its pulsations to the paper, causing it to approach and recede from the point of the pen, from which it receives the telegraphic character, durably and legibly written with ink—the principle of its action being the fact that a fillet of paper can be caused to vibrate with as little power as can the vibrations necessary to make the connections between the poles of a local battery while the pen being stationary is easily kept supplied with ink by a very simple and certain apparatus.

We cannot see any advantage in this *improvement*.

The Niagara Bridge.

The foot-way of the Suspension Bridge which spans the gulf of Niagara for a thousand feet, is now completed. Foot passengers now walk across from the dominions of Uncle Sam to the dominions of Aunt Victoria for 25 cents. This is a great work, not only physically but morally. It will promote intercourse and good will among the republicans and royalists. Difference of opinion regarding governments, should never make men enemies.

The towers for the great bridge will be commenced forthwith, just in the rear of those that sustain the cables for the foot bridge, and before the year 1850 the whole work will probably be completed, and a train of cars will pass over it. The number of those who visit the bridge as a matter of curiosity is quite large, and the income derived from that source is sufficient to pay a handsome interest on the amount expended.

Lighting of Streets.

The lighting of streets was not introduced into Paris till 1524, and then only during the winter months. London was not lighted, throughout the year, by government till 1736. Though gas-light was known in China ages previous, it was unknown in Europe till 1792. —William Murdoch first applied its use in his house and offices. By Mr. Winsore it was first used in the London theatre in 1803, and on one side of Pall Mall in 1807. The extent of pipes of the London Gas Light Company now exceeds one hundred and fifty miles, and the capital invested in the works and apparatus is estimated at three million pounds sterling. How the lovers of the beaten track should frown on this grand improvement, which has not only not stood the test of ages, but is scarcely older than a century!

Interesting Relic of Antiquity.

The bottom of an ancient vessel, supposed to have been under water many centuries, was dug out of the mud off the American wharf, Southampton, England, a short time ago It is supposed to be of Danish build, is about 60 feet long by the keel, very sharp, with a great rake at the bow, all clse timber, and the outside timber from three to four inches thick.—There are no signs of any iron-work found about her. It appears that she had but one mast, which stood in the middle. Her timbers and plank were perfectly sound. The wreck was raised by Mr. Loosemore, of the American Hotel. In first lifting her, she broke off at the floor heads, owing to the heavy weight of mud in her.

Substitute for the Crank.

A Mr. Andrews of Mississippi, has constructed a machine designed to dispense with the use of the crank in all applications of steam to machinery. A strong chain of particular construction is used in its stead, with suitable machinery to operate on the chain, which produces all the motion that can possibly be produced by the use of a crank, and that motion, steady, smooth and regular, entirely free from the jarring and shaking produced by the revolutions of a crank, the power at all times being the same. There are no dead points to pass, and thus all the power created is advantageously employed, with all possible ease and convenience. It is made to run either forward or backward, or put at a neutral point where it will not drive either way, and in that situation the steam can be worked off without any reference to any other machinery commonly used for that purpose.

For the above we are indebted to our exchanges, and we are unable to give credit to the original. There are but few who are aware of the many plans already tried to supersede the crank, but no one that we have seen can be compared with it. The dead points are not the bugbears some would make them to be.

A Clean City.

The village of Brock, near Amsterdam, in Holland, is said to present the most remarkable example of uniform neatness, and punctilious attention to cleanliness, that the world can produce. It is chiefly inhabited by the wealthy farmers, who live in affluence upon the income of their lands. Wagons and carriages are not allowed to pass through the streets, the pavement of which is kept in the best possible order; while the foot-walk, which is as clean as scrubbing brushes can well make it, is sanded and marked out into fanciful ornamental figures. The doors and porches are burnished, and the trunks of the trees which grow before them, are polished by frequent scrubbing. To gain admittance at the front door is a favor not to be expected, except by persons of some consequence, and if the shoes of a visiter happened to be a little soiled, a pair of slippers is presented to him at the door, which he is to use as a substitute during his stay.

England may take this city as a sample of sanatory reform, and there is an evidence in the people of the village of Brock which proves the truthfulness of the old proverb—"they are always clean who can buy soap."

A Yankee Feat.

Charles Ellett jr., the architect of the Niagara Falls Suspension Bridge, thus describes his first passage over the foot bridge :—

"This morning I laid the last plank of my foot bridge on the Canada side, and then drove over and back again in a buggy. Five hundred feet of the bridge was without railing on either side. My horse, though spirited, went along quietly, touched up occasionally with the whip, just to show him that he was in command and give him courage.

On returning, I directed one of the drivers to bring on his team—a two horse closed carriage, weighing altogether over a ton and a half. I took his place on the box and drove over and back. The horses went quietly. The flooring is but eight feet wide, 220 feet high, 720 feet long, and without praising, over such a torrent as you never saw, and never will see any where else!"

Ellett must be a brave man. It was a fearful scene to behold him driving a horse and wagon along a narrow bridge with but two feet to spare on either side and the boiling river two hundred feet below. In point of cool and quiet daring we do not recollect of a single feat on record to equal this.

Swarm of Bees in a Chimney.

At the house of Mr. Van Alstyne, Pine Plains, Dutchess Co N. Y., may now be witnessed the rare spectacle of a swarm of honey bees in a chimney. They have commenced their labors near the mantel piece of the first floor, and may be heard in any part of the room This swarm of bees entered the chimney about the middle of June. They may be seen going in and out at the top, as actively as if they were at work in a hive.

Freaks of Electricity.

The great lightning storm of 19th of June which extended 700 miles in length, presented at Trenton, N. J. some facts that are deserving of particular record. The extensive iron works at that place, belonging to Peter Cooper Esq, New York, became charged with electric energies from the storm. The iron damper connected with iron chains, was attempted to be lowered during the storm. The first person that laid hold of the chain was knocked down; a second made the attempt and shared the same fate, and a third received a severe shock. A fireman stirring the melted iron in the furnace, received a shock when he touched the molten metal with his iron stirrer. A tin dripping pan under the bellows was bruised as if a 56 lb. weight had fallen in its center from a great height. There were in the works at the time between two and three hundred men, and about 2000 tons of iron, some in a state of fusion, some in a heated state, and the residue cold.

Fattening Horses.

On his visit to the stud of the Pasha of Egypt, Col. E. Napier says—"Among other things I happened to mention the India system of fattening horses on chopped sheep's heads, and was not a little surprised when he said that he could the more readily credit it, as to his personal knowledge the Arabs of the Hedjaz often feed their horses on the dried flesh of the camel, as well as its milk, and that in some of the districts along the coast, when barley was scarce, even dried fish was used for them as an article of food."

The gluten of the plant and the muscular fibre of the animal are almost identical, and yet they are chemically different. We are indebted to Professor Mulder, of Urecht, for the observation, that if gluten, albumen, casein, fibrin, &c. be dissolved in caustic potash, and an acid be then added to the solution, a white matter is separated which from every one of these substances is the same—which exists in and form from 95 to 99 per cent. of them all, and to which he has given the name of protein. In fact these substances are all compounds of protein, with minute proportions of sulphur and phosphorus; it is upon these minute proportions of sulphur and phosphorus that the differences observed among these several substances as they exist in the animal and the vegetable in a considerable degree depend.

The Asparagus of the Cossacks.

In the Gardiners' Chronicle it is stated that, "of all the authorities we know, Dr. Clark is the one who gives the fullest details respecting the utility of the Typha. He found the inhabitants of Tcherkask so enthusiastic with respect to the excellence of the typha, that they regarded it as a sacred plant, a special gift of Providence. The lower parts of the stem are brought to the tables at every meal and in every house bundles are to be found, about three feet in length, tied like the asparagus, ready for use it is sold in the markets and among the provision merchants. It is best used in spring, like our asparagus, when the plants begin to shoot. It is said that in this state it forms a dish which those who have once partaken of it desire again, with increasing relish."

Food & Slavery, Freedom and Starvation.

Russia is a paradise in comparison with England; as in the former country, although the people are not called freemen, they are not starving to death. And the worst feature of English starvation is, that there is food enough in the country to feed the whole population with abundance, but the poor people cannot earn wages enough to buy it! Good beef can be bought in St. Petersburg for two cents per pound, and there is plenty of money.

Deprival of a Princess of her Distinction.

The Madrid Gazette of 29th ult. publishes a royal decree, depriving Her Royal Highness the Dona Josefa Luisa de Bourbon, sister of the King, of the honors and distinctions of an Infanta of Spain, for having married M. J. G. Rente, a person of American origin of much inferior rank.

Cast Iron Saddles.

A mechanic in Wilmington, Delaware, has invented a cast iron saddle, which is represented to be both excellent and cheap.

Harvesting Machines.

Seven farmers in Illinois have published a Card in the Chicago Democrat, stating "that having purchased each of us one of Esterly's new and improved Harvesting Machines, and being all of us present this day at a full and most satisfactory trial of the same, believe that we shall render the public a service by declaring, that in our opinion, every difficulty encountered during the past season, in running this machine, has been entirely overcome; that very great and important improvements have been made since the past harvest in their construction; and that in our opinion they are now a perfect labor-saving machine, capable of performing with ease and certainty all that was ever claimed in their favor by the friends of this improvement, being simple in their operation, constructed so as to be both light and substantial, and easily managed by one person, with either two or three horses, as the nature of the ground may require."

This is indeed a high recommendation and the machine no doubt is a valuable one.

Mechanical Magnetism.

The application of electricity as a motive power to machinery, was the invention of the distinguished Prof Henry, Professor of Natural Philosophy in Princeton, and Secretary of the Smithsonian Institute. He constructed a small machine, which is still preserved in Princeton, and which is interesting, as being the first instrument by which a regular motive power was obtained from that subtle agent. —It bore somewhat the appearance of the working beam of an ordinary steam engine, and was so arranged that the descent of one side of the beam cut off the current and changed its direction around the magnets. The positive poles thus became negative, and vice versa. The beam was attracted at the other end, and repelled at this. But the return of the beam operated as a cut-off again, and the opposite end was repelled by its magnet, while this end was attracted.

The Locomotive in Italy.

A railroad is soon to be opened in Tuscany, from Leghorn to Florence,—entirely the product of British enterprise. Even the fuel consumed is shipped from England. The contrast between the bustle and excitement of railway travelling and the indolent and primitive habits of the people, is said to produce a singular effect. Says a traveller in that beautiful land, "the wooden forks, and broad heavy scythes, and misshapen carts, and uncouth ploughs, have not altered their shapes since the days of Scylla. The hand loom has not been removed, and the homespun material is still carried by the frugal housewife to the market. There is not a machine shop in the land."

An Ancient Eagle.

An American Eagle has been presented to M. Vattemare, in aid of his system of international exchanges, by William Feener, Esq. a native of Ireland, residing in Washington. It was captured on the Potomac, near Mount Vernon, about forty years ago, and is now nearly half a century old. In 1824, it presided on the triumphal arch under which Lafayette passed, and on the Fourth of July last participated in the ceremonies of laying the foundation of the Washington Monument.

A machine called a "patent excavator" was set on fire last week at Mount Hope, Quincy, and nearly destroyed. The machine was a new one, and cost $6000, and was owned by Mr. William Evans, who is employed under contract to fill up the flats at South Boston, Mass.

A number of our farmers are complaining of potatoe rot. It would be better to drop the cultivation of the potatoe entirely, than to plant with a certainty of failure.

Tobacco is said to be a good antidote to the bite of the snake or the dog The tobacco should be moistened in the mouth and applied to the wound as soon as possible.

A large agricultural meeting has been held in England and a Mr. Slocum awarded a medal for the introduction of agricultural tools from the United States.

An English company has commenced the successful cultivation of the Assum tea plant in Upper Assum. It is thought that it will yet be a great opposition to that of China.

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Bramah's Planing Machinery.

The following is the specification of a patent granted to J. Bramah in 1802 for improvments in machinery to produce straight, smooth, parallel and cuvilinear surfaces on wood, &c. The description is very plain and was first reported for the Repertory of Arts.

"The principal parts of my invention are as follows: that is to say, to shorten and reduce manual labor, and the consequent expenses which attend it, by producing the effects stated in my patent by the use of machinery, which may be worked by animal, elementary, or manual force; and which said effects are to produce straight, true, smooth and parallel surfaces in the preparation of all the component parts of work, consisting of wood, ivory, horn, stone, metals, or any other sort of materials or composition usually prepared, and render them true and and fit for use by means of edge tools of every description. I do not rest the merits of this my said invention on any novelty in the general principal of the Machinery I employ, because the public benefit I propose will rather depend on new effects, produced by a new application of principles already known, and Machinery already in use for other purposes in various branches of British Manufactory. This Machinery, and the new manner of using it, with some improvements in the construction together with sundry tools and appendages never in use before, are particularly described and explained hereunder.

"I mean to use and apply for the purposes above stated every kind of edge tool or cutter already known, either in present shape, or with such variations and improvement as the variety of operations I may encounter may severally call for. But the tools, instead of being applied by hand, as usual, I fix, as judgment may direct, on frames driven by Machinery, some of which frames I move in a rotary direction round an upright shaft, and others having their shaft lying in a horizontal position, like a common lathe for turning wood, &c. In other instances I fix these tools, cutters, &c., on frames which slide in stationed groves or otherwise, and like the former, calculated for connexion with, and to be driven by Machinery, all of which are hereafter further explained and particularized.

'The principal points on which the merits of the invention rest are the following. First, I cause the materials meant to be brought true and perfect as above described, to slide into contact with the tool, instead of the tool being carried by the hand over the work, in the usual way.

Secondly, I make the tool, of whatsoever cutting kind it be, to traverse across the work in a square or oblique direction, except in some cases where it may be necessary to fix the tool or cutter in an immovable station, and cause the work to fall in contact with it by a motion confining it so to do, similar to the operations performed on a drawing bench.

Thirdly, in some cases I use, instead of common saws, axes, planes, chisels, and other such instruments usually applied by hand, cutters, knives, shaves, planes, and the like, variously, as the nature of the work may render necessary; some in form of bent knives, spoke shaves, or deep cutting gauges, similar to those used by turners for cutting off the roughest part. I also apply planes of various shapes and construction, as the work may require, to follow the former in succession, under the same operations; and which latter I call finishings.

Fourthly, these cutters, knives, &c, I fix on frames of wood or metal properly contrived for their reception, and from which they may be easily detached for the purpose of sharpening and the like: thes I call cutter frames. These cutter frames I move in cases like those on which the saws are fixed in a sawing mill, and sometimes to reciprocate in a horizontal direction, confined and stationed by grooves or otherwise, as may be found best calculated to answer the several works intended. In other instances, and which, I apprehend will generally have the preference, I fix cutter frames on a rotary upright shaft, turning on a step and carrying the frame round in a direction similar to the upper millstone; and sometimes I cause the frames to turn on a horizontal shaft, just resembling the mandrel of a common turning lathe or those Machines used for cutting logwood, &c., for the dyer's uses. When these frames are mounted in any of the foregoing directions for cutting, planes, &c., are fixed so as to fall successively in contact with the wood or other materials to be cut, so that the cutter or tool calculated to take the rough and hilly part operates the first, and those that follow must be so regulated as to reduce the material down to the line intended for the surface. These cutter frames must also have the property of being regulated by a screw or otherwise, so as to approach nearer the work, or recede at pleasure, in order that a deeper or shallower cut may be taken at discretion, or that the Machine may repeat its action without raising or depressing the materials on which they act. The manner of thus regulating the cutter frames, when on an upright shaft, is particularly described below. These cutter frames may be made of any magnitude and dimensions the work requires, only observing to make the diameter of those on the rotary plane so as to exceed twice the width of the materials to be cut, as the said materials must slide so as to pass the shaft on which the cutter frames revolve, when on the principle.

(To be continued.)

Paper Hangings Prepared by Means of Nitrate of Silver and other Salts.

Mr. Larocque presented a paper to the Academie des Sciences, Paris, explaining a new process for colouring and designing paper hangings. He observes, that nearly all the salts are volatized under the influence of vapour from water or saline salutions and that the nitrate of silver, among other salts, on account of its easy reduction, would furnish a great variety of shades of color; and by means of reserves made in the paper, any designs in white may be obtained. The following is the process employed:—Take of pure nitric acid, sp. gr. 1.50, two parts; and distilled water, one part. Place the mixture in a porcelain capsule and heat it, throw in about two ounces of silver, and continue to apply heat until the action of the acid on the metal has ceased; with this quantity of silver 700 or 800 sheets of paper may be colored. In this operation but a very small loss of silver will be found, for the residue can be formed into nitrate of silver and sold; or, if calcined at a red heat in a crucible with carbonate of soda, the metallic silver may be obtainod and employed for a new operation. In order to obtain good designs, it is necessary to operate in a place well lighted and out of currents of air.

The plan of M. Larocque is just a modification of common photographic paper.

Charcoal.

Charcoal, graphite, and the diamond are well-known examples of the same element existing in different states. Each of these bodies are forms of carbon, yet how different in character! Charcoal is readily inflammable, graphite less so, and the diamond burns only at the highest temperatures. Graphite, like the diamond, is crystallizable, but one crystalizes in forms which cannot be referred to the other. The specific gravity of the diamond is much greater than that of either graphite or charcoal. Graphite and coke are conductors. There are no two distinct elements which differ more from each other than these modifications of the same element. No doubt the peculiar conditions of the compounds of carbon,—carbonic and oxalic acids, and also, in all probability, mellitic and croconic acids,—are dependent upon these allotropic condition of the same element.

Chromium, obtained from its oxide by fusion with charcoal at a very high temperature, is a pale grey metal, which cannot be oxidized at a red heat or by the action of boiling nitro-muriatic acid; but the chromium obtained from its combination with chloride, by the action of potassium, is a pulverulent mass which takes fire at about 400° of Fahrenheit, and is converted into green oxide of chromium, and it dissolves readily even in muriatic acid.

The State of Massachusetts granted within the past year $10,000 for the establishment of agricultural schools.

New Method of Inlaying and Coating Metals with various Substances.

M. Cyprian M. T. Dumotay, a French gentleman, has lately invented and patented a new mode of inlaying and coating metals with various substances, which articles have when finished the appearance of being richly ornamented with inlaid work, and has been called by the French "Damasquererie."

He first covers the article, while in a heated state, with a varnish of bitumen and virgin wax, spreading the said varnish by means of a ball of silk or fine leather as is practiced for etching. When the varnish is dry, the parts which are to be acted upon are laid bare by a point, as in ordinary etching operations.

When the inlaying of one metal is required the metal is first cleansed and then immersed in a bath of the metal to be deposited by the galvanic current, and when the metal has been deposited to a thickness equal to the depth of the hollow parts of the design, it is withdrawn from the solution, washed in water and dried in saw dust. The damaskened surfaces are then laid bare by means of free stone, or emery, or by filing and scraping, so as to remove the superfluous deposited coating and show the inlaid work. In this manner successive layers of all kinds of figures may be deposited in metal. Incrustations of silver may have fillets of copper, &c.

This is a branch of electrotyping, and for ornamental metallic workmanship, it opens up a wide field. We perceive in it a fine substitute for the present mode of silvering, or chasing arms with gold. By the old mode silver and gold wire are driven into seams checkered at the bottom, and then all smoothed off, thus producing by much trouble and at much expense, the silver ornamented pistols and fine fowling pieces that we often see.

Wheat and Bran.

According to Mr. John Donaldson "100 lbs of wheat bran contains 48 lbs. of nutritive matter"—"100 lbs. of wheat chaff contains 60 lbs. of nutritive matter"—"100 lbs. of wheat contain 95 lbs. of nutritive matter; so that 200 lbs. of bran, 160 lbs. of wheat chaff, and 100 lbs. of wheat, must be of equal value as food." The error is almost as great in putting the bran below the chaff as it is in putting the wheat itself so little above it. There are similar mistakes as regards the relative value of the green crops, and, in fact, it must be obvious that the theory is in error by which the merits of these different kinds of food have been estimated. It was all very well for the time of Sir H. Davy, or Mr. Sinclair, to suppose that all of (and none but) the dry substance of any vegetable which hot water would dissolve, and take with it through filter paper, was "nutritive matter;" but practical men soon proved this idea erroneous, and scientific men have long since erected a better theory of nutrition.

Facts About Digestion.

Wheat is most nutritious of all substances except oil; containing ninety-five parts of nutriment to five of waste matter. Dry peas, nuts and barley are nearly as nutritious as wheat. Garden vegetables stand lowest on the list, inasmuch as they contain when fresh a large portion of water. The quantity of waste matter is more than eight-tenths of the whole. Veal is the most nutritious, then fowls, then beef, last pork. The most nutritious fruits are plums, grapes, apricots, peaches, gooseberries and melons. Of all the articles of food boiled rice is digested in the shortest time—one hour. As it also contains eight-tenths of nutritious matter, it is a valuable substance of diet. Tripe and pig's feet are digested almost as rapidly. Apples, if sweet and ripe, are next in order. Venison is digested almost as soon as apples. Roasted potatoes are digested in half the time required by the same vegetable boiled, which occupy three hours and a half—more than beef or mutton. Bread occupies three hours and a half—an hour more than is required by the same article raw. Turkey and goose are converted in two hours and a half—an hour and a half sooner than chicken. Roasted veal and roast pork, and salt beef occupy five hours and a half—the longest of all the articles of food.

Mode of Preparing Tannate of Iron

A very pure sulphate of iron is made by the action of dilute sulphuric acid on iron filings: from this sulphate, by means of carbonate of soda, a carbonate of iron is precipitated which is washed several times, and then dried on the stove. It is now pulverized and thrown by small portions at a time into a boiling solution of very pure tannic acid in a porcelain vessel—the proportions used being very nearly five parts of the carbonate to one of the acid, or 440 parts of carbonate to ninety of the tannic acid. The fluid is to be stirred constantly till the effervescence ceases. It is afterwards exposed to a heat equal to the boiling point of water, till it acquires the consistence of thick soup. It is then withdrawn from the fire and poured on proclain plates, and dried with the assistance of heat. The tannet of iron thus obtained is of a crimson colour, insipid, insolvable, uncrystalized. It may be administered either suspended in syrup, or still more conveniently in the form of pills. The dose is from eight to thirty grains a day. It acts more rapidly in persons of sanguine temperament.

Tannate of Iron in the Treatmeat of Chlorosis.

Dr. Benedetti asserts that the tannate of iron is the most efficacious of all remedies in the treatment of chlorosis. In evidence of this he cites cases from his own practice and from that of Dr. Majocci, affirming that the treatment by the tannate of iron is successful in the severity of the case.

The Carrot.

The Carrot, says an eminent physician, "is a most wholesome culinary root; it strengthens and nourishes the body, and is very beneficial for consumptive persons." Carrots are generally served boiled, with meats, yet they make an excellent ingredient in soups, and form, we are told, a very agreeable pudding. As an agricultural root, they are not surpassed for feeding cattle; horses will do more work and look better on them than any other feed.

This vegetable is supposed to have been introduced into Europe from the Island of Crete, since which it has greatly improved. Some half dozen leading varieties are cultivated for supplying the kitchen regularily at all seasons of the year.

The Beet.

The Beet is a native of the sea-coast of the south of Europe. It takes its name from the shape of its seed-vessel, which, when it swells with the seed, has the form of the letter Beta of the Greek Alphabet. There are several varieties in cultivation for culinary purposes, of which the most essential sorts are the Long Blood and the turnip Rooted. The last is the earliest variety, and takes its name from the form of the root, its quality being decided by the richness of color and closeness of the grain. There are several other sorts which come more under the notice of the agriculturist, such as Sugar Beet, Mangel-Wurzel, &c.

Stockings.

The first knit stocking sent to England was during the reign of Henry VIII. And Queen Elizabeth received a pair of knit silk stockings as a very valuable present. It is said that this stately queen pressed her royal feet on tresh hay (in her palace chamber) instead of carpets, which probably were not invented till about the time of her death; the stocking-loom not having been invented till 1589, by William Lee, of England, then very imperfect and not in general use for a length of time.

Last year it was quite common to see a Nottingham stocking weaver plying his trade on his portable stocking loom, in some of the public streets of London. At first, it was novel and many was made by it, but a lately patented loom to be driven by steam will soon throw the hand stocking loom out of the market.

New Diamond.

A new kind of diamond has been discovered in large quantities in Siberia. The stone resembles the diamond very much, but is lighter and not so hard, although harder than granite. Specimens have been deposited in the Imperial Museum at St. Petersburg.

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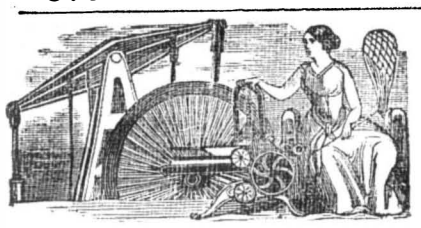


New Inventions.

Sawing Irregular Shapes.

Mr. Thomas C. Merrill, of Newbury, Mass. has very recently secured a patent for a new and useful improvement in machinery for sawing irregular shapes in timber, &c. He uses a circular revolving frame in combination and operating together with a reciprocating moveable saw frame ; and in combination with the latter he uses parallel feed rollers having a horizontal motion. These combinations along with two vertical parallel frames he claims " for the purpose of sawing any material at variable inclinations to the horizon and in irregular lines across it during the up and down movements of the saw. About four months ago, a gentleman from Newark, N. J. called upon us and described an invention which he desired to patent, identical in principle with Mr. Merrill's. He will now see that it will be imprudent to be at any more expense in getting up a model and making application for a patent.

New Last Machine.

Mr. Abner Lane, of Killingworth, Conn., has invented a new and useful improvement on a machine for turning lasts and other irregular shapes on wood, &c. The cutter moves on the principle of the slide lathe and the wood to be turned revolves on spindles, set, as it were, on the periphery of a drum.—Twenty or thirty lasts can be turned out at one operation without changing the spindles. An engraving of this machine will appear in our next, and we defer further remarks for the present.

Book Backing Machine.

Mr. Chauncey L. Derby, of this State, has invented a machine for backing books, whereby a great saving of time will be made. In a letter to the publishers of the Scientific American, the inventor says : " My machine will back *one hundred* 12mo. books in the short space of *fifteen minutes*." Bookbinders, we are certain, will highly appreciate Mr. Derby's invention.

Improved Bellows.

Mr. John C. Shepherd of this city, has recently completed a substitute for the common Bellows for household use, which is simple, neat and superior to the old article. By turning a small crank a steady current of air is thrown out, by means of which a fire may be kindled in " less than no time." We shall give an engraving of it soon.

New Boot Heel.

Mr. P. S. Devlan, of Reading, Penn., the inventor of the *oil saver*, or the apparatus to use water as a substitute for oil in the lucubration of shafts, &c., has invented a new and beautiful metallic spring heel, which is far superior to india rubber and gutta percha springs. It consists of a metal spring fitted into the inside of a metallic cup, of the shape of the heel exactly, and attaching the spring to a moveable heel or that part which touches the ground so that when the foot presses on the ground, the moveable heel isgently forced upwards into the cup, thus giving elasticity to the boot, ease to the foot, and what is of nearly as much importance, such heels can be made much cheaper, look neater and endure longer than the common leather heels. A new one can be substituted for an old one without waiting for the shoemaker, as any one can heel his own boot by the use of a few screws.

New Marine Ventillator.

Mr. Bulkly, of this city, has invented a new Ventillator for vessels which has been very highly commended. It can be applied to any vessel as a permanent fixture, to operate without any attendance night and day, and as well during the most severe storms as in fair weather and calms ; and with safety to vessel and cargo.

Smoke Consumers.

Many improvements have been made to consume the smoke of furnaces and employ the smoke at the same time as a combustive material. To our knowledge a number of schemes have been lately brought forth as new to accomplish this object in the best possible manner. As all inventors should, as far as possible, know the ground upon which they tread, we call their attention to a patent lately granted to Mr. F. P. Dimpfel, of Philadelphia, for this purpose. Mr. Dimpfel claims the method of impeding the escape of the products of combustion, by means of a bed of gravel in combination with a blast in a closed ash pit, whereby the gaseous products of combustion are maintained under pressure in the furnace and escape therefrom by reason of pressure in the furnace, instead of exhaustion in the chimney. He also claims the returning and forcing through the fire a portion of the products of combustion together with atmospheric air, that the inflammable or combustible matter may be more thoroughly consumed. (Supplying it with oxygen is a good plan, but it is the same as that employed in the German furnaces.)

Mr. Dimpfel claims also the placing of the fan blower within an enlargement of the chimney flue that it may be surrounded or acted upon by the heated products of combustion for the purpose of heating the atmospheric air as it passes through for the blast. The damper of this smoke consumer placed in the pipe through which the blast passes from the fan blower to the furnace, is connected with the furnace door in such a manner, that the opening of the one shall close the other, and vice versa.

This invention is a very important one, and these claims will be beacons to other inventors. They are so plain as to give a clear idea of the improvements.

HOT AIR FURNACE.

Fig. 1.

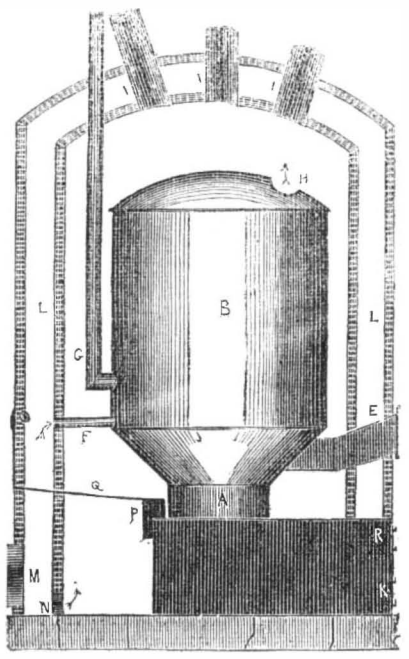
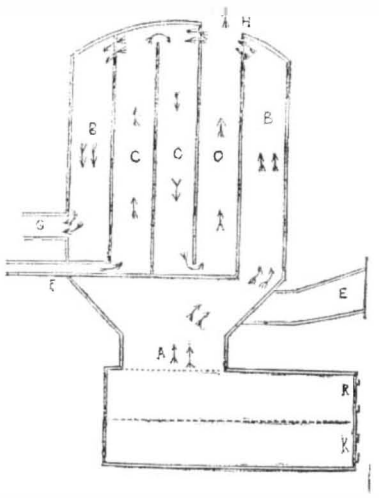


Fig. 2.



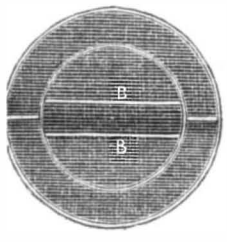
This is a very excellent Hot Air Furnace, the invention of Mr. Wm. G. Wing of New Bedford, Mass., and for which he has taken measures to secure a patent.

Figure 1, represents the Furnace as set within its brick chamber, and Figures 2 and 3 are section views. The following description will render the nature of the invention clear to the understanding and its merits will at ot once be appreciated.

Fig. 1.—A, Fire Pot. B B, space between the outer and inner cylinders, through which the smoke passes to reach the smoke pipe.—E, door for supplying fuel. F, pipe for the admission of cold air to the inner drum. G, smoke pipe, H, opening in the top through which the air when heated, passes from the inner drum into the common chamber. I I I, conducting pipes leading to the different rooms. K, ash-pit door. L, space between the brick walls for the circulation of cold air. M, cold air supply pipe. N, opening for the admission of cold air to the outside surface of furnace. Q, door for entering, supplying water, &c. P, evaporating pan. R, door for clearing grate, sifting ashes, &c. In Fig. 2 the course of the smoke is shown by the double arrows, up the front side of the furnace over the partition B B, and down the back side to the smoke pipe. The course of the cold air is through the inner drum, which is divided into three spaces as seen in Fig. 3.—One of these is tight at the bottom, allowing the air to pass over it, the other tight at the top but allowing the air to pass under it.

Fig. 2.—A, Fire pot. B B, space between the outer and inner drums. C C C, inner cylinders. E, pipe for the admission of cold air to the inner drum. G, smoke pipe. F, door for supplying fuel. H, opening in the top through which the air passes from the inner drum into the common chamber. R, door for clearing the grate and sifting the ashes. K, ash pit, and the coal and ashes fall from the fire pot on the grate, indicated by the dotted lines above the ash pit.

Fig. 3.



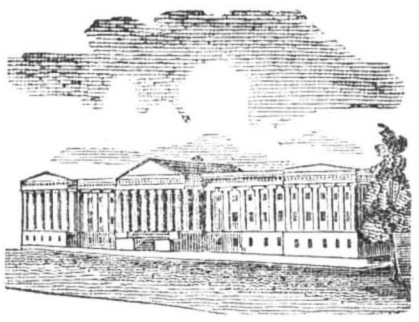
This shows the two drums as they appear in looking into them from above. The partitions which divide the space between the drums are seen on the outer ring, and those which divide the inner drum are seen by the light lines B B.

Substitute for oil in Woolen Manufactures.

It is well known that a considerable quantity of oil is used in carding of wool to render it unctious. This is expensive in a high degree to the manufacturer and has been objected to, also, as being injurious to the woven fabric. To remedy this evil both in regard to expense and to make a stronger fabric, letters patent were granted last year for the use of steam as a substitute for oil and it is said to present all the advantages without the inconvenience of oil. That steam is a good substitute for oil we are not prepared to gainsay. We only hope that it is.

Magnet Ore Separator.

Mr. Arthur Wall, of London, who secured a patent a few years ago for throwing a current of electricity among pig iron in a molten state, to make it malleable iron, has secured another English Patent for the separation of oxides of iron from other oxides by means of permanent magnets fixed on to a drum covered with leather The plan is altogether inferior to that of Mr. Cook's, an engraving of which appeared in No. 39 of this vol. Scientific American, and Mr. Cook's was in operation and that very successfully, at the mines in Plattsburg, in this State, long before Mr. Wall's was sealed.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending August 1, 1848.

To Cheney Reed, of Cambridge, Mass., for improvement in Hinges and Fastenings for Window Blinds. Patented August 1, 1848.

To Edwin B. Horu, of Boston, Mass , for improvement in Moulds for making Argand lamp fountains of glass Patented August 1, 1848.

To Edward Kershaw, of Boston, Mass., for improvement in Powder-proof Locks. Patented August 1, 1848.

To William Hall, of Boston, Mass., for improvement in Powder-proot Locks. Patented August 1, 1848

To Benjamin F. Shelabarger, of Mifflintown, Penn., for improvement in Harrows.—Patented August 1, 1848.

To Andrew Hartman, of Clappville, Mass. for improvement in Printing Yarns for the manufacture of Tapestry. Patented August 1, 1848.

To John A. and Alfred F. Jones, of Lexington, Ky., for improvement in Bedstead Fastenings. Patented August 1, 1848.

To James Cummings, Sr., of Cannonsburg, Penn., for improvement in Spark Arresters. Patented August 1, 1848.

To John Benson and James Day, of Brooklyn, N. Y., for improvement in Sugar Pans — Patented August 1, 1848.

To T. H. Parker, of York, Penn., for improvement in heating Apartments. Patented August 1, 1848.

To John W. Batson, of Baltimore, Md., for improvement in Window Catches. Patented August 1, 1848.

To George F. Muntz, of Birmingham, England, for composition for Sheathing Metal.—Patented in the United States August 1, 1848. In England Oct. 15, 1846.

To Joseph C. Vaughan, of Greenbush, and John F. Winslow, of Troy, N. Y. for improvement in machinery for welding Iron Pipe.—Patented August 1, 1848.

To Fowler M. Ray, of New York City, for improvement in India Rubber and Pneumatic Springs. Patented August 1, 1848.

To Leonard Powers, of Edmiston, N. Y., for improvement in Claw Hammers. Patented August 1, 1848.

DESIGN.

To Samuel H. Ransom, of Albany, N. Y., for Design for Stoves. Patented August 1, 1848.

INVENTOR'S CLAIMS.

Spoons.

To William Mix, of Prospect Conn., for improvement in the manufacture of Spoons.—Patented 23d May, 1848. Claim.—I do not claim as my invention simply strengthening spoon handles by wire—that has long been known and done ; but I do claim as my invention and improvement a new and improved method of strengthening the handles of spoons by wire, casting the handles hollow, by means of a drop tap, and placing the wire therein, and by means of a drop with suitable dies condensing and closing the metal around the wire, with a smooth surface for the last finish, in the manner substantially as above specified, and therefor I solicit Letters Patent.

Locks.

To William Reynolds, of Greenbriar Co. Va., for improvement in Locks for Doors. Patented 9th May, 1848. Claim.—What I claim as my invention, and desire to secure by Letters Patent, is the arrangement of the inside works of the lock as herein described, so that it cannot be unlocked by its own key or any lock pitch whatever, and can be only unlocked at the extreme end of the wire or cord.

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NEW YORK, AUGUST 12, 1848.

An English Patent.

Reader, did you ever see an English Patent? If not, you should try and get a sight of one as soon as possible. It is a curiosity, a standing evidence of monarchical adherence to an old custom, foolish though it be. An American patent can be rolled up in a sheet of paper and carried about wheresoever the owner listeth. Not so with the Patent missile of Sovereignty. An English patent has to be secured in a box under a lock and key. This is owing to the danger of appropriation by tailors and wax candle makers, for the royal seal is attached to the document. Well some may ask, " and what of that, has not an American Patent the seal of the Republic attached to it, as well as a British Patent that of the Crown?" True enough friend, but there is a great difference in seals, and just as much between the seal of the Republic and the seal of the Crown as between a button and a turnip. If you were to walk up Broadway some sunny day and meet two gentlemen with seals to their Repeaters—the one a neat gold ornament of common size, the other of genuine stuff but about the size of a turnip, what could you think of the exhibition? Would you not consider the man with the ponderous dangle a shallow pedant and the other possessing at least some common sense? Well friend, the pumpkin seal is Uncle John's Patent. Each patent has a huge lump of stamped wax attached to it, so large that it is no small weight to carry about. The first one we saw brought to our recollection the nursery story of " the old woman wandering about with a yard of black pudding hanging to her nose " It is a a matter of surprise to us that the British government should hang on to these nonsensical and foolish old customs. They are fifty years behind us in this respect. We believe they feel that there is much foolery in their lump of wax, but they hate innovation—they would rather, in their adherence to old associations, put up with an old evil than a modern good. Every one has his own notion about these things, and we find no fault with every man suiting his own taste, but it would answer just as well for those patents to be less cumbrous and certainly far more common sense like.

Wooden Pavements.

A correspondent of the London Mechanics Magazine, in a late number of that excellent work, recommends what he calls an " Improved Compound Pavement." It consists in combining wooden and stone blocks together, " so as to make a noiseless pavement and afford a safe footing for horses." The wooden blocks are to be made of an octagon form and the granite blocks of a rectangular form.

We do not know what plans have been taken to render the wooden pavements in London durable and firm, but speaking from the experience we have had on this side of the Atlantic, and especially in this city, we consider " the wooden pavements to be a dead failure " A few years ago wooden pavements were all the rage here and a number of our streets were blessed with its silent qualities, but it was at the expense of keeping the peace truly. The wooden pavements that were laid down in this city, lasted about eighteen months on an average, and were a nuisance before they were lifted. They have all nearly disappeared and been supplanted by the cobblestone, a poor pavement also. We see that the wooden block pavement that was laid down in Nassau street at the Custom House, a little over a year ago, is lifted high and dry this week to give place to some more durable stuff. There is no kind of pavement equal to the square granite block. If laid well, it is very durable and is easy on horses and carriages. The greatest part of New York city is paved with cobble, or hard water stones. They are all of a spherical form and make poor pavements. Lately the spirit of improvement has added section after section of " Russ Pavement" to our city, at great expense to be sure, but it will be found we believe to be not an expensive pavement in the end. Our predilections, however, are for a well beetled pavement of granite square blocks, not laid in concrete or cement. This would render the pavement not very expensive at first, easily relaid and not very difficult to remove to get at pipes or drains below.

Speaking of pavements, we have a word to say in reference to plank roads. These roads are excellent, but our people must not dream of them lasting long without repairs. They will have to be repaired often, and the old proverb " a stitch in time saves nine," should not be forgot. If carefully and attentively repaired they will all yield a handsome return.

Nitre in City Wells.

The Magistrates of the City of Glasgow, Scotland, having appointed Drs. Thompson and Penny to analyse the water of various wells in that city and report on the same, have done no small service to science and honor to themselves. The following table gives the amount of nitric acid in grains, per imperial gallon, which they have succeeded in separating from the following wells :—

	Nitric acid grs. per gall.
St. David's Well,	2.629
Glassford street,	1.844
George street,	0.884
Gorbals, Norfolk street,	2.574
Infirmary Well,	0.219
Cheapside, Anderston,	3.64
Orr street, Calton,	2.48

These numbers are not given as absolutely correct but only as approximations. Imperfect as they are, however, they are of great importance, as throwing light on the surface of certain impurities in these waters, as bearing upon the general question of sanatory measures adapted for large towns, and as pointing at the enormous waste of valuable fertilizing matter with which the strata under cities are literally saturated. From the large amount of salts contained in these waters it is obvious that they would be exceedingly valuable for the purpose of irrigation.

It was shown as far back as the year 1751, by Margraff, that the wells situated in the town of Berlin, in Prussia, contained a salt resembling nitre which could not be detected in the wells at some distance from that city; and in the last twenty five years it was demonstrated with great precision by Liebeg that in the wells even of a small country town containing 8000 souls, nitric acid could be easily detected, while in wells at a distance from human habitations, no trace of such an acid was appreciable by the most delicate chemical tests. Ever since these valuable experiments it has been admitted as an established fact that nitric acid enters into the compositions of the salts contained in the city wells; but not before has any attempt been made to determine the actual weight of nitric acid which is present in these salts.

We have various grounds for drawing conclusions with reference to the influence of the foreign substances in well water upon human health. If a substance is not necessary to the human system, its omission from the food is a judicious if not an imperative proceeding.—In these wells sulphate of lime is an abundant constituent, but it is not required by the animal economy; and this form of lime is an objectionable one, upon the ground that it is not very soluble in water. Lime in all forms when used in excess in the food, is highly objectionable, as it is very frequently the cause of gravel and stone, and enters into the composition of many concretions which gather in the human system. So powerful is its influence, that when a person has recovered from this painful disorder a recurrence of the disease in all its violence has been occasioned by the presence of even a small quantity of lime in the water used to drink. It follows then, that the less the proportion of lime there is in the water, the better it is fitted for such cases: but although the disease, in its most aggravated form, is fortunately not common, the deposition of minute concretions of lime is far from being a rare occurrence. In country situations in the lowlands the wells often contain much lime in solution, and the inhabitants do not appear to be liable to gravel, but they are placed in totally distinct circumstances from the dwellers in a large and populous city.

The fact that nitric acid exists in city wells, affords evidence that foreign matter, from the most impure sources, has free access into their waters; and although none of these substances are direct poisons when taken in minute quantities, yet we know that they do not exist in our food, and are rather opposed than favorable to health. The minute nature of an impurity is not, however, calculated to fortify us with security against its possible danger, when we call to mind that an imperceptible portion of small pox matter on the lancet point is sufficient to subject to mortality an entire nation.

Improving the Condition of the Laborer.

There is a great deal of mock philanthropy on this subject, which ought not to pass for more than it is worth—Men talk fluently about the education of the working-classes, the melioration of their physical circumstances, and the like, and often wind up with some highflown phrases about the dignity of labor, and the equal rights of man. At the same time, these very men are devoting all their energies to the support of a system, which must necessarily depress the laborer, and defraud him of his inherent rights. They are perfectly willing to pocket the avails of the poor man's labor, but shudder at the thought of being obliged themselves to take part in his toil; they would as lief go to the funeral of a daughter or a sister as to see her at household drudge or a factory girl, but they are eloquent apostles of progressive democracy, and no doubt, gain many votes, by their loud talk in favor of the rights of labor. But so long as labor is toilsome and repulsive as it now is every body who can do so, will get rid of it, and of course, must be supported by the industry of another. Labor, must be so organized that it will be attractive to all, that all will engage in it, and that all will reap the fruits of their endeavors. Nature has made physical existence a necessity, and under congenial circumstances a pleasure—She has always made a pair of hands, where she has made a human stomach and brain. A man might as well be all stomach, all brain, as to think of living without the use of his hands. And what better use of the hands, than productive industry,—industry that will feed the mouth, clothe the back, and provide the eye and ear with all the delights which they crave?

Securing Patents.

Patents for several very valuable inventions having lately been refused at Washington in consequence of some deficiency in the necessary papers, we are admonished again to inform inventors and others who desire to take out Patents, that they will greatly consult their interests by having their business transacted through the *Scientific American* office. Our arrangements for securing Patents are probably the most complete of any concern in the United States. A long experience in Patent Office matters, together with constant dealings among inventors and inventions, enables us to say that any thing entrusted to our care will be *properly attended to.* Letters from the country should be directed (post paid) to the publishers of this paper.

Vegetable Ivory.

A new curiosity and a valuable one, has just been brought into use in Europe and specimens sent over to the National Institute at Washington. It is a nut, and called the "vegetable ivory, or nut of the ivory plant." The shell, or outer covering of the nut, is scarcely thicker than that of the common hazel, and of a similar color, and is so extremely hard that no instrument can readily make an impression on it. It is classed among the family of palms, and is common in the Mascareen islands, where it is called tagna plant. It is about half as large again as the horse chesnut. The kernel, in its early state, exudes a limpid liquor, which becomes milky and sweet, and at length acquires the solidity of ivory, which it very much resembles in color, polish and consistency. The English are manufacturing a variety of fancy articles out of the nut, which is said to be superseding the elephant ivory. One quality of this nut is said to be, that its shavings may be boiled into a milky liquor, and not at all gelatinous; and we should not be astonished if some of our ingenious countrymen were to find out some method of reducing large masses of it to the liquid form, and then moulding it into beautiful ornaments of a size much larger than those which are made of the animal ivory. For Piano Keys it will be a most excellent and cheap substitute for the African ivory and will be welcomed by the makers of these instruments. No importation, but specimens, have yet been made.

Electricity and Hydropathy.

The human blood, in a normal and healthy condition of the system, is in a positive state, which is constantly maintained by the activity of the generating sources within—an excess generally passing off in silence from the cuticular surfaces so that out of 356 experiments made by Mr. Hemmer, of England, upon the " uncovered skin" 322 indicate the presence of positive electricity. This surplusage of the fluid upon the surface we believe to be indispensable to the healthful condition of the whole animal economy, and that, when, from any cause, it is diminished or ceases, diseased action ensues.

Dr. Means is of opinion that the state of the surface in inflammatory rheumatism is electro-positive, and the reverse in chronic rheumatism. Dr. Ruggles, as quoted from the Hampshire Herald of January 4, says of the electric action which he is enabled to perceive, " in chronic rheumatism, it is quiescent. In inflammatory rheumatism, it is tremulous, and appears confined to the cuticle."

Letters for Europe.

Letters for Europe may be sent to Canada on paying ten cents postage, where they can then be put into the English mail bag for the Cunard steamers at Halifax, without any charge, paying only one shilling sterling (the old rate,) on arrival in Liverpool,—and thus save fourteen cents on every half ounce letter. All duplicates, letters of immigrants, and others, where the delay of a few days is unimportant, can be forwarded by this route.

Valuable Book for Sale.

One volume of the Glasgow Practical Mechanic and Engineer's Magazine. The volume is complete in itself, full of large and valuable drawings and contains 416 pages of the most useful information. Price $3.

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At the commencement of the present volume of the Scientific American we had nearly one thousand complete setts of the preceding volume on hand. Since that time we have had 500 copies of those setts bound, and the balance have been ordered by mail and sent in sheets. We are now obliged to inform our patrons that we are unable any longer to furnish *complete* setts in sheets, and that we have but fifty more copies left, which are bound. The price of the remaining fifty copies which are left will be hereafter $3 per copy (neatly bound,) or we can furnish a few more copies in sheets, minus Nos. 1, 10, 16, 17 and 46, at $2 per sett. All the numbers of the third volume can be had yet, at the subscription price.

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Arts, Manufactures and Machinery.

Copying by Moulding —Brick Machines. —Embossing China —Square Glass Bottles.—Knife and Umbrella Handles — Tortoise Shell and Tobacco Pipes.—Embossing on Calico and Leather.—Swaging and Engraving by pressure.

The method of producing multitudes of individuals having an exact resemblance in external shape, is adopted very widely in the Arts. The substances employed are either naturally or by artificial preparation, in a soft or plastic state; they are then compressed by mechanical force, sometimes assisted by heat, into a mould of the required form.

To make bricks and tiles an oblong box of wood fitting upon a bottom fixed to the brick maker's bench, is the mould from which every brick is formed. A portion of the plastic mixture of which the bricks consist is made ready for the workman by less skillful hands, and being thrown by him with some force into the mould, it fills all the angles. The upper surface is then smoothed off by a stick dipped in water drawn across the upper side of the pattern box. Brick machines operated by horse power are now common in this country. A number of patents have been secured for this purpose, and most of them good and valuable. In respect to this kind of machines, America stands at the head of the list in invention.

Tiles of various kinds and forms are made of finer materials, but by the same system of moulding.

Many of the forms given to those beautiful specimens of earthen ware which form the equipage of our breakfast and dinner tables, are not capable of being executed in the lathe of the potter. The embossed ornaments on the edges of the plates, their polygonal shapes, the fluted surface of many of the vases, would all be difficult and costly of execution by the hand; but they become easy and uniform in all their parts, when made by pressing the soft material out of which they are formed, into a hard mould.

The care and skill bestowed on the preparation of that mould is repaid by the multitude it produces. In many of the works of the China manufactory one part only of the article is moulded: the upper surface of the plate, for example, whilst the under side is figured by the lathe. In some instances the handle, or only a few ornaments, are moulded, and the body of the work is turned.

In making square glass bottles it is frequently desirable to have imprinted on them the name of the maker of the medicine or other liquid they are destined to contain. A mould of iron, or of copper, is provided of the required size, on the inside of which are engraved the names intended. This mould, which is used in a hot state, opens into two parts, to allow the insertion of the round, unfinished bottle, which is placed in it in a very soft state before it is removed from the end of the iron tube with which it was blown. The mould is now closed, and by blowing strongly into the bottle the glass is forced against its sides.

The property which horn possesses of becoming soft by the action of water and of heat, fits it for many useful purposes. It is pressed into moulds, and becomes embossed with figures in relief, adapted to the nature and uses of the objects to which it is to be applied. If curved, it may be straightened; or if straight, it may be bent into forms which ornament or utility may require; and by the use of the mould these forms may be multiplied in endless variety.

The most common sorts of knives, the crooked handles for umbrellas, and a multitude of other articles to which horn is applied, attest the cheapness which the Art of Copying, gives to the things formed of this material.

The same principle is applied, to things formed out of the shell of the turtle, or the land tortoise From the greatly superior price of the raw material, this principle of Copying is, however, more rarely employed upon it; and the few carvings which are demanded are usually performed by hand.

The simple art of pipe-making is almost entirely one of Copying. The moulds are formed of iron, and open in the middle; the line of junction of the two parts of the mould may generally be observed running lengthwise from one end of the pipe to the other. The hole passing to the bowl is formed by thrusting a long wire through the clay whilst it is enclosed in the mould. Some of the moulds have figures, or names, sunk in the inside. This gives a corresponding figure in relief upon the finished pipe.

Calicoes of one colour but embossed all over with various raised patterns, although not much worn in this Country, are in great demand in several foreign markets. This appearance is produced by passing them through a pair of rollers, on one of which is figured in intaglio the pattern to be transferred to the calico. The substance of the cloth is pressed very forcible into the cavities thus formed, and preserves its figured appearance after considerable use.

To emboss upon leather the article is forced into the cavities, and that part which is not opposite to any cavity is powerfully condensed between the rollers.

Swaging is an art of Copying practised by the smith. In ordert o fashion his iron and steel into the form demanded by his customers, he has small blocks of steel into which are sunk cavities of various shapes; these are called swages, and are generally in pairs. If he wants a round bolt, terminating in a cylindrical head of larger diameter, having one or more projecting rims, he uses a corresponding swaging tool; and having heated the end of his iron rod, and thickened it by a process which is technically called upsetting, he places its head upon one of the parts; and whilst an assistant holds the other part, he strikes it several times with his hammer, occasionally turning the head one quarter round. The iron which was in a softened state is thus forced by the blows to assume the form of the mould into which it is impressed.

Engraving copper plates by pressure is one of the most beautiful instances of the art of Copying carried to an almost unlimited extent; and the delicacy with which it can be executed, and the precision with which the finest traces of the graving tool can be transferred from steel to copper or even from hard steel to soft steel, is most unexpected. We are indebted to Mr. Perkins for most of the contrivances which have brought this Art at once most to perfection. An engraving is first made upon soft steel, which is hardened by a peculiar process without in the least injuring its delicacy. A cylinder of soft steel, pressed with great force against the hardened steel engraving, is now made to roll slowly backward and forward over it. The soft steel cylinder receives the design, but it is in relief. This is in its turn hardened without injury; and if it be slowly rolled to and fro with strong pressure on successive plates of copper, it will imprint on a thousand of them a perfect fac-simile of the original steel engraving from which it resulted. Thus is the number of copies producible from the same design multiplied a thousand fold.

But even this is very far short of the limits to which this process may be extended. The hardened steel roller may be employed to make a few of its first impressions upon plates of soft steel, and these being hardened may in their turn become the parents of other rollers, each generating copper plates like the original. The possible extent to which fac-similes of an original engraving may be thus multiplied, almost confounds the imagination, and appears to be, for all practical purposes, unlimited. There are two principles which peculiarly fit this Art for detecting the forgery of Bank-notes, to prevent which Mr. Perkins found it a matter of great difficulty. The first is the perfect identity of every impression with every other, so that any variation in the minutest line would at once cause detection. The other principle is, that the plates from which all the impressions are deduced may be formed by the united labours of artists most eminent in their several departments, all working at the same time; and that, as only one original of each design is necessary, the expense, however great, will be trifling, compared with the immense multitude of copies produced from it.

Many of the gold and silver mouldings used by jewellers consists of thin slips of metal, which have received their form by passing between steel rollers, thus taking a succession of Copies of the devices engraved upon them.

Sheets of paper coloured with gold or silver leaf, and embossed with various paterns, are used for covering books, and for many ornamental purposes. The figures upon these are produced by the same process, that of passing the sheets of paper between engraved rollers.

The Silk Weavers of Lyons.

Lyons is the centre of the great silk manufacturing region of France. It has a population of nearly 200,000, swarming through the lofty irregular houses which crowd and darken the narrow, crooked and filthy streets. The city itself, like each individual street, has an air of being crowded. It looks as though it could not breath, pressed in as it is between the numerous hills which lie about the junction of the Rhone and Seine.

The silk manufacture was begun here in 1450. There are no large buildings, like our cotton factories, where the work is carried on; everything is done in private houses. The proprietor gives out the work all prepared for weaving, and it is brought home to him when it is finished. A draughtsman, usually a minor partner, is constantly employed in getting up new patterns, and it is the special business of another artist to lay in the piece. There are in operation in and about Lyons not less than thirty-one or two thousand silk looms, or about one to every six or eight of the population. The houses in which the work is carried on are dark, close, damp and filthy, the living is of the poorest kind, and the whole weaving population is wretchedly depraved, both physically and morally. Of the men who are of a proper age for military service, at least one-half are exempted by weakness, diseases or deformity, and the females can boast no superiority whatever over the men.

For a few sous a day, weary and hungry, and sick, these wretched beings toil on for the decoration of those who can scarcely believe that there is such a thing as misery in the world. Since the revolution of February, the weavers have been almost wholly supported by government. Beautiful velvets, that previously brought 22 francs a yard, have been sold as low as 10 francs, and the most splendid silks have been sold for a discount of more than 50 per cent. The usual meals of a common weaver at Lyons are thus stated by Doctor Bowring:—

1½ lb of bread of excellent quality; 1 litre of wine. Dinner of soup with a little meat in it. Cheese.

Rent varies from $15 to 25 per annum, for 2 or 3 small rooms. Many are boarded by their employers for about 11 cents per day.

Fineness of Wool.

Softness as well as fineness, is a quality of wool to which attention is paid, wool of the same quality of fineness has not the same degree of softness. There are several causes to account for it, and among them is soil; as, for instance, the chalky districts of England affect the wool to such an extent as to make it invariably brittle and harsh. The general cause of a deficiency of softness in wools of the same breed, may be referred directly to the condition of the sheep. It has always been stated that when the animal was kept in uniform good condition, the necessary quantity of yolk was supplied. Soft wool, of the same fineness as hard wool, will make cloth worth more than 20 per cent of the hard.

The fibre of wool may be considered coarse when it is more than the five hundredth part of an inch in diameter, and very fine when it does not exceed the nine hundredth part of an inch, as exhibited occasionally in choice samples of Saxon Merino wool. It is said there are animals which have a wool underneath a covering of hair, the fibre of which is less than the twelve hundredth part of an inch.

Formerly, wool of short staple only was thought by the manufacturer indispensable to make a fine cloth with a close pile or nap, but the improvements made in machinery within a few years have superseded this consideration, and now long-staple wool is most valued. The Australian wools, which are of Merino and Saxon blood, from the mildness of the climate of New South Wales, are very much longer in staple than formerly, and are much used for the above object. It is a query, however, whether a fine and very compact fleece, possessing a long fibre, can be produced on the same sheep. Very close, fine fleeces, are always comparatively short in staple; and close fleeces are indispensable in our rigorous climate, to protect the sheep from the effects of cold and wet; on the contrary, open fleeces are usually long in staple, but a poor defence against a low temperature. It is, therefore, a question for the wool-grower of the North to consider whether, in obliging the manufacturer, he will not adopt a policy injurious to the constitution of his sheep. In a more southern latitude, this consideration is not so important.

The alteration of the color was the first recorded improvement of the sheep, and its purity, its perfect whiteness, should never be lost sight of by the sheep-master of the present day. It is, however, not so much considered as it should be. Manufacturers desire none other fine wools than those of the purest whiteness.

Pleasure.

Blessed be the hand that prepares a pleasure for a child: for there is no saying when and where it may again bloom forth. Does not almost everybody remember some kind-hearted man who showed him a kindness in the quiet days of his childhood? The writer of this, recollects himself at this moment as a barefooted lad, standing at the wooden fence of a poor little garden in his native village: with longing eyes he gazed on the flowers which were blooming there quietly in the brightness of a Sunday morning. The possessor came forth from his little cottage—he was a wood-cutter by trade—and spent the whole week at his work in the woods. He was come into his garden to gather a flower to stick in his coat when he went to church. He saw the boy, and breaking off the most beautiful of his carnations—it was streaked with red and white—gave it to him. Neither the giver nor the receiver spoke a word; and with bounding steps the boy ran home; and now, here at a vast distance from that home, after so many events of so many years, the feeling of gratitude which agitated the breast of that boy expresses itself on paper. The carnation is long since withered, but it now blooms afresh.—*Douglass Jerrold.*

National Happiness.

Neither industry nor science, nor machines nor books can make a people happy. All these things are useful in their way, and the legislator ought to propagate and multiply them; but if contented with having developed the intellectual and terrestrial part of man, he neglects to educate the soul—that divine essence of humanity, instead of a happy people, he will see around him only an uneasy multitude, unbridled in its passions and harrassed with the double want of rising and of knowing, of which the sublime instinct constitutes its punishment. You have directed it towards the earth, and it remains there in the midst of riches and of pleasures which consume it. Why do you not open for it the gates of heaven? Everything which calms the heart, everything which aggrandizes humanity, comes from above You wish for happiness, for power, it has been placed in heaven!—and the wisest, if it be not also the most religious, can never be the happiest nation.

Silicum.

The metallic base of flint, it has been discovered, is capable of assuming two or more different states: in one it will take fire and burn vividly at a very slightly elevated temperature, in the other form it may be subjected to the white heat of the flame of a blowpipe without inflaming. Now we know in nature a great variety of silicates which differ in a remarkable manner from each other. Garnet and idiocrase are only soluble in muriatic acid after they have been fused; but the mineral kingdom yields also many silicates which are entirely soluble in the same acid. These differences are, without doubt, occasioned by the silicium existing in the compounds in the different conditions referred to.

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TO CORRESPONDENTS.

"J. B. of Ohio."—Gatchel has a patent hydraulic ram, but we have not his claim before us. M. B. Bateham, of Columbus, in your State, is his agent, and you may see one in operation at that place, or find out all about it by writing to Mr. Bateham. The principle of them all is alike, and is for throwing a small stream of water above the fountain head.

"T. S. W. of Mass."—L. M. of Mass. has been here and employed a mechanic from Brooklyn.

"H. C. C. of Penn."—Iron pipes are the best for heating apartments by steam, but the waste steam from your engine will be found inadequate for your purpose. Most of the factories in this part of the country employ a separate boiler to heat the apartments by steam. They employ a hand force pump to supply it with water. You may be able to generate a surplus of steam in your boilers and use the exhaust along with it.

"W. Z. of Ill."—We have answered you by letter a long time ago; also B. & C. of Ind." stating that the price of the engine would be $600 all complete, directed to V. D. H., but have got no answer.

"A. C. of Geo."—We shall have something for you on *Quills* next week.

"J. B. and M. S."—There is nothing new about your wheel. The only thing you could patent is the manner of fitting the spout, and it is doubtful whether that is not already in use. There is no means of calculating the true power of a water wheel even if its diameter and the height of head is known. The power of a wheel is usually ascertained by friction upon its axle. For this purpose an instrument called the Dynometer is used.

"J. E. J. of Ia."—Cement for floors is made with lime and pitch, or coal tar. In some districts where limestone occurs along with bitumen, it is dried, ground, sifted and then mixed with melted pitch. This mixture is moulded while in a fluid state into slabs, &c. It is manufactured in many places in Italy and used for the floors of balconies. The floors are first covered with a layer of plaster of Paris. We do not think that you can use a substitute for good plank, equally cheap, convenient and durable. Lime, sand, a small portion of plaster of Paris and the blood of an animal, all mixed together with some water, makes a very hard, cheap and durable floor.

"J. B. of Ill."—We shall notice your request next week.

"R. McR. of Ala."—We have forwarded your letter to Mr. Howell, as directed.

"N. P. H. of Ky."—We do not know the price of the carding and burr machines. You will see the process for superseding the use of oil in another page. If you address a letter, post paid, to Rogers & Ketcham, Machine Manufacturers, Patterson, N. J you will get all the information that you want in relation to the price, &c.

"C. K of Ohio."—We are sorry you did not employ us to secure your Patent in the first place. You would then have saved twenty or thirty dollars. We have had a long experience in matters relating to the Patent Office, and when we undertake we do business as it should be. We do not live by charging Inventors heavy fees. Send on your model and we will soon arrange matters for a Patent.

"Z. P. of Penn."—We have just received your letter.

"Atlantic Steam Navigation."—The difference of time between a vessel crossing the Atlantic in 10 days with the engines performing at 120 and another at 132, would be 9 days and 4 hours for the latter, as performing one-twelfth faster; but allowing the increase of resistance for the increase of speed, the gain would only be 18 hours and 48 minutes, counting the resistance as one-tenth. There is, however, no correct rule for calculating the amount of resistance to the increase of speed. It is well known that the proportion is far more in some vessels, according to their build, than others.

"Orange County," should have sent us his real name, but we assure him that he can satisfy himself for two shillings, by getting a tinsmith to make a tube for his experiment upon an eighth of an inch scale. The first question was not plain and if he had just said "will a pipe one hundred feet long empty a pond 30 feet deep with the outer end of said pipe higher than the end in the pond," we would have understood him at once. It will not. It is a syphon principle. The discharging orifice must always be lower than the induction orifice.

Spoke Machines.

We wish to know whether there are any machines in operation in any part of our country that turns out spokes for carriages, &c. Also what it or they can do—their capacity, price, &c. We have had a number of letters addressed to us upon this subject, with a desire to know something of the operations of such a machine with the intent to purchase. We have in a few instances endeavoured to gain the above information by letter, but have not been able.

Barry's Tricopherous.

We have before alluded to this article for beautifying the hair, and we again repeat that it is the only compound we have ever tried for eradicating dandriff from the head that proved successful. It gives the hair a healthy and glossy appearance and is a preventive against baldness. Sold by the inventor at 139 Broadway, at the low price of 25 cents per bottle. The trade furnished at a discount.

We are indebted to the Hon. J. A. Dix for Congressional documents.

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☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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A good 66 inch Reflector, 5 inch aperture, of good construction, with Equatorial Stand, Eight eye pieces and Micrometer For sale cheap, by
au12 2t* G. D. HISCOX, 31 Jay st. N. Y.

Judson's Stave Dressing Machine.

THIS Machine, on which Letters Patent were granted May 1st, 1847, has been in successful operation for the past year, and hundreds of thousands of staves have been dressed by it. It is warranted to dress the same quantity of staves with as little power as any that can be started, also leave the full thickness on thin edges and thin ends, and conform as near to the crooks and twists of the timber as can be desired. The jointing of the machine which accompanies it, has been subjected to the severest test, and pronounced superior to that performed by hand. Application for a patent on the Jointer has been made.

Large quantities of Hogsheads and Shooks made with staves dressed and jointed with their machines have been sold and used to the entire satisfaction of the purchasers.

For rights and machines address the proprietors st their Manufactory, Artizan street, New Haven, Connecticut, where machines in full operation may be seen. JUDSON & PARDEE.
New Haven, July 17, 1748. jy29 3m*

To Cotton Manufacturers.

THE Subscriber will furnish Cotton Manufacturers with his improved Cotton Willow. The fact of its being introduced into most of the best mills in New England is the best proof of its excellence. It is extremely simple in its construction and will do more and BETTER WORK with a less expenditure of power than any other Willow; it prepares the cotton so much better than any other that there is much less power and repairs needed on the succeeding machinery. It is as safe from fire as a Card, and its form and action are such as to draw all the flyings and dirt from the journals; it will convey the cotton to any desirable distance short of 250 feet. It can be placed in the basement of a mill or other place nearly worthless for other manufacturing purposes, and will blow the cotton into the rooms above. All necessary information given for placing and operating the machine in any peculiar or difficult situation. EDMUND BACON,
Superintendent Quinebaug Manufacturing Co.
j24 tf Norwich, Conn.

Patent Agency.

THE undersigned having established permanent agencies in England, Ireland, Scotland, France and Belgium (with the leading manufacturers and inventors of which countries he is personally acquainted), is enabled to transact all business entrusted to his care with perfect safety and dispatch; and such is the integrity, energy and legal ability of our agents, that the patentee is, in ninety-nine cases out of a hundred, sure to reap a rich harvest from any invention which passes through our hands.

Since the first of March last we have sold three patents in Great Britain for $17,580, and five in France for 38,000 francs.

For integrity, the undersigned refers to:—Horace Greeley, Esq. Tribune Buildings, New York.
CLINTON G. GILROY,

All letters must be POST PAID, and addressed to Clinton G. Gilroy, 71 Nassau st. New York. jy1 3m*

Coal.

THE Subscriber has constantly for sale by the cargo or ton all sizes of Coal for MANUFACTURERS and FAMILIES, from the best Schuylkill and Lehigh mines. Hazleton and Spring Mountain, lump and steamboat Coal. Tamaqua Chesnut for engines.—Peach Orchard and other red ash Coal. Midlothian, Virginia, a superior article for smith's use. Cumberland, Sidney and Liverpool Coal. For sale at the LOWEST market prices. J. P. OSTROM,
au5 3m* corner 10th Avenue and 26th st.

To Manufacturers.

THE Subscriber has just arrived from England, and is desirous of obtaining a situation in a cotton manufactory to superintend either spinning, doubling or warping operations. He is practically acquainted with spinning and doubling in their various branches, and with fancy and plain warping, and has not only superintended spinning operations, &c. but has manufactured himself. He has recommendations from most influential and respectable persons in England, both as it respects character and qualifications, and will be happy to fill any situation relative to the above manufacturing operations. The most satisfactory evidence will be given to manufacturers who are desirous of obtaining an agent or superintendent. Address "Atkinson," Paterson, New Jersey. au5 2t*

TAFT'S PREMIUM LETTER COPYING PRESS.

THE Subscriber continues to manufacture his Premium Letter Presses, at Worcester, Mass., and respectfully informs his friends and the trade generally, that he keeps constantly on hand a large assortment, which he offers for sale at reduced prices. Orders by mail will be promptly attended to
GEO. C. TAFT,
Worcester, Mass., April 11, 1848. au5 tf

Ballard's Improved Jack Screw.

PATENTED.

THE advantages of this Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires,

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS,

Of various sizes, power and price, constantly on hand at the manufactory,
No. 7 Eldridge street, near Division.
m20 tf

STEAM BOILER.

BENTLEY'S Patent Tubular and other Boilers of any size, shape or power, made to order, by
SAMUEL C. HILLS & CO.
au5 43 Fulton st.

PREMIUM SLIDE LATHE.

THE subscriber is constantly building his improved Lathes of all sizes, from 7 to 30 feet long, and can execute orders at short notice.
JAMES T. PERKINS,
Hudson Machine Shop and Iron Works,
m11 Hudson, N. Y.

Lap welded Wrought Iron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.
THOMAS PROSSER, Patentee,
d26 28 Platt street, New York

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eight in more shingles can be sawed in the same given time than by any other machine now in use.
Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

GENERAL PATENT AGENCY.

REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 189 Water to 43 Fulton street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.
au8 SAMUEL C. HILLS, Patent Agent.

Johnson & Robbins,

Consulting Engineers and Counsellors for Patentees.

Office on F street, opposite Patent Office, Washington, D.C. j17 tf

☞ The above is prepared to execute all orders at the shortest notice and on the most reasonable terms.

To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information concerning them had.

Patent Rights for different States, Counties, &c. for sale, as above. m25 6m*

Machinery.

PERSONS residing in any part of the United States who are in want of Machines Engines, Lathes, OR ANY DESCRIPTION OF MACHINERY, can have their orders promptly executed by addressing the Publishers of this paper. From an extensive acquaintance among the principal machinists and a long experience in mechanical matters they have uncommon facilities for the selection of the best machinery and will faithfully attend to any business entrusted to their care MUNN & CO. a15

LAW'S

STAVE DRESSER AND JOINTER.

THE undersigned has perfected and put into very successful operation his Stave Machine.

It will **Dress** and **Joint** Staves of all shapes, kinds and dimensions, and of promiscuous widths, as they come from a mixed pile, at the rate of from 6 to 8 staves per minute, finishing them, before they leave the machine, ready for the truss hoop. They are both dressed and jointed very smoothly and handsomely, bringing each stave of equal width at the two ends WITHOUT WASTE OF STOCK and perfectly to correspond with every twist or crook, and with as little power in proportion to the work done, as any other machine.

For rights (which are indisputable,) or machines, address, post paid.
H. LAW, Wilmington, N. C.

N. B A machine will be in operation in New York or vicinity, in the course of the ensuing month. jy15 2m

Stave Dressing Machine.

THE undersigned are manufacturing and have now in operation, a machine for **Dressing Hived Staves,** which will dress 126 hogshead or 170 barrel staves per hour, with ONE HORSE POWER, and with TWO HORSES WILL DOUBLE THE NUMBER

It will dress CROOKED and WINDING staves to perfection, and leave the full thickness on those with thin edge, a desideratum worthy of attention.

The machine is simple, compact and durable, and has received the approval of every practical Cooper that has witnessed its operations. We warrant it to perform FULLY EQUAL to our representation and shall be pleased to exhibit it to all who may favor us with a call. For further description and terms, apply to
WM & E. T. FITCH, 2d., New Haven, Conn., or
GEO. GILBERT, Westville, N. H. Co., Conn.
j3 3m*

TALBOT'S PATENT REVOLVING BLIND HINGE.

Important to Builders and others.

THESE Hinges are for opening, closing, locking and completely regulating the blind upon the interior of the house without raising the sash. They are adapted to any kind of house or style of finish. All communications, whether for the purchase of the article, or of Town, County or State rights, addressed to the subscriber, or to J. W Ingell & Co., Taunton, Mass., will be promptly and satisfactorily attended to.
j3 tf L T. TALBOT, Taunton, Mass.

Agricultural Implements.

☞ Inventors and Manufacturers of superior Agricultural Implements may find customers for their goods by applying at the Agricultural Warehouse of S. C. HILLS & CO. 43 Fulton st. au8

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Practical Receipts.

Prepared by a German Chemist for the Scientific American.

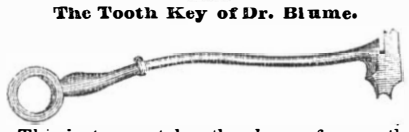
Borate of Copper a beautiful Green.

The public have been often and repeatedly cautioned against the poisonous effects of the green paints which are produced by arsenic, and the dangerous application of them for wall papers has especially been pointed out.

Dr. Elsner, in Berlin, proposed as a substitute for the arsenic colors, to make decoctions of woad and quercitron with solutions of the carbonate of soda, to precipitate the same with a solution of the sulphate of copper, and to dry the precipitate thus obtained after repeated washing by a temperature of 44 R.

The most beautiful green, which can produce a great variety of shades and can meanwhile be applied for porcelain and oil painting although it is somewhat more expensive than the previous mentioned, is the borate of copper. It is a much clearer and much more saturated green than the chromate or green ultramarine. It is produced in solutions, one of borax and the other of blue vitriol in such proportion as will correspond about with the chemical equivalents of the two substances (16 sulphate of copper and 24 borax.) The two filtred solutions are mixed together, the light green precipitate is collected on a filter and repeatedly after washed with *cold* water. It is then at first dried in common temperature and heat applied only towards the end of the process. Cold washing is required, because hot water would decompose the precipitate, extracting the boric acid from it, by which means the separated oxide of copper would cause a dirty blackened appearance; the same evil occurs if a high temperature is applied to the wet or moist precipitate. In a heated state the water deprives the copper soon of its boracic acid and dark spots are immediately produced. As soon as the precipitate is dried in the air, in which state it appears as a dark green horny, shining mass, it is pulverized in a wedgewood mortar, and heated in a Hessian crucible until it commences to get red hot, (it must not melt.) The borate of copper loses by this process the rest of its water, the small particles are deprived of their horn-like appearance and gloss, and the color will be of a deep or agreeable yellowish green, according to the longer or shorter continued application of heat. The color is then ground and prepared.

The Tooth Key of Dr. Blume.



This instrument has the shape of a gently bent or inclining key with the exception of the fulcrum, which is shaped, as represented in the above engraving, in such a way that it comes immediately in contact with the tooth, leaving the gums untouched. The fulcrum of a tooth key is generally round, and large, and often or always it has to be wrapped in cloth or leather to lessen or reduce the pressure which it causes on the gums. The fulcrum of the key here represented ends in a broad point in the same shape as the hooks to be inserted, and has to be inserted between the tooth and the gums upon the root of the tooth. Teeth are much easier extracted with this instrument. The pointed fulcrum is furrowed on both sides of its lower end and somewhat bent.

Photographic Paper.

(*Concluded from our last.*)

We give this part of preparing the Talbotype paper in the patentee's own language, which is very clear and comprehensive.

In order to fix the process thus obtained, first dip it into water then partly dry it with blotting paper, and then wash it with a solution of bromide of potassium containing one hundred grains of the salt disolved in eight or ten ounces of water, or else I fix it with a hot solution of hypo-sulphite of soda in the way described in a subsequent part of this specification. The picture is then washed with water, and then finally dried.

The picture thus obtained will have its lights and shades reversed with respect to the natural objects, vide-licet, the lights of the objects are presented by shades, and vice versa I call it a negative. But it is easy from this negative picture to obtain another which shall be positive or conformable to nature, vide-licet, a picture in which lights shall be represented by lights, and the shades by shades. It is only necessary for this purpose to take a second sheet of the same sensitive paper and place it in close contact with the first upon which the picture has been formed; a board is put beneath them and a sheet of glass above; the whole is pressed into close contact by screws. Being then placed in sunshine or daylight for a short time, an image or copy is formed upon the second sheet of paper. This image or copy is often invisible at first, but the image may be made to appear in the same way that has been already stated; but I do not recommend that the copy should be taken on this kind of sensitive paper, on the contrary, I would advise that it should be taken on common photographic paper. This paper is made by washing good writing paper first with a weak solution of common salt, and next with a solution of nitrate of silver; but since it is well known, having been freely communicated to the public by myself in the year one thousand eight hundred and thirty-nine, and that it forms no part of the present invention, I need not describe it here more particularly. Although it takes a much longer time to obtain a copy upon this paper, yet the tints of the copy are generally more harmonious and agreeable.

In order to fix such positive copies, I recommend to dip them into three separate vessels of warm water, then into a cold solution of hyposulphite of soda, and lastly to dip them once more into three separate vessels of warm water.

The following may be considered auxiliary and additional modifications of my discovery or invention. I sometimes take a sheet of iodized paper and wash it over with a solution of gallic acid in water, and then dry it.

Paper so prepared, I call Io gallic paper; it will remain good a considerable time if kept in a press portfolio. When wanted for use I wash it with a solution of nitrate of silver, which renders it sensitive to light and fit to be used in the camera.

This process differs from the Talbotype process before described by me, in not using the nitrate of silver and gallic acid in conjunction. I find it is advantageous to use them separately on many occasions because it removes the great inconvenience arising from the speedy decomposition of gall or nitrate of silver. Since the yellowish tint of some Talbotype negative pictures impedes the process of taking copies from them; in order to remedy this defect, I plunge the picture into a hot bath of hypo-sulphite of soda or any other soluble hyposulphite, dissolved in about ten times its weight of water. This solution should be heated to nearly the boiling point. The picture should remain in it about ten minutes; it is then removed, washed and dried. By this process the picture is rendered more transparent, and its lights become whiter. It is also rendered exceedingly permanent. After this process, I sometimes wax the picture, by causing melted wax to penetrate into the pores of the paper, the object of which is to give increased transparency.

In the above described process, I claim as my own invention and discovery—

First,—the preparation of iodized paper as above described, which is not self sensitive to light but serves as the basis of all the subsequent operations.

Secondly,—the employment of gallic acid, in conjunction with iodine, and the salts of silver to render paper extremely sensitive to light, the gallic acid not having been used in Photography previously to my discovery.

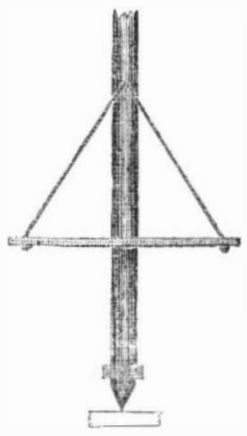
Thirdly,—it was not known previously to my discovery thereof, that paper could be impressed with a latent or potographic image. I claim this paper as my own discovery, and likewise the means rendering the image visible at pleasure, viz. by washing the paper in the manner before described with gallo-nitrate of silver or with any other chemical liquids which act upon those parts of the paper only which have been previously acted upon by light.

Fourthly,—the using hot or boiling solutions of the hypo-sulphites in order to give increased whiteness to Talbotype photographic pictures, and at the same time, make them exceedingly permanent.

Fifthly,—the waxing Talbotype negative pictures, in order to make them transparent, and thus to facilitate the obtaining positive copies therefrom, the said pictures having been previously whitened by immersion in the hot solution of hyposulphite, as last mentioned.

MECHANICAL MOVEMENTS.

The Drill.



This is a representation of a Drill which is moved by pressing on the horizontal piece which is connected to the drill by bands. The drill is moved by turning the horizontal piece and when once set in motion it is alternately revolved by the action of the hand. It is just a modification of the bow drill.

Vibratory and Rectilinear Motion.

This cut represents an arrangement for giving motion to a seive by moving it backwards and forwards in the guides seen on each side at the same time that they are moved in a cross direction by the pendulum. By motion of the pendulum the box receives a kind of side to side shaking motion, while the spring on the pendulum attached to the box, gives it a longitudinal motion on the frame, thus securing two motions by the action of the pendulum.

For the Scientific American.

Bronzing.

When bronze is exposed for some time to the atmosphere, it becomes a peculiar looking greenish color. To make this artificially 2 parts verdigris and 1 part sal ammoniac are dissolved in vinegar, boiled, filtered and much diluted, and articles to be bronzed are immersed in this solution till they acquire the peculiar color, when they are carefully washed.—Different tints may be given to bronze from a reddish to a light yellow, by muriatic acid, or by a mixture of saltpetre, common salt and sulphuric acid. Bronze powders are made from Dutch foil, gold leaf, mosaic gold, or powdered tin. or precipitated copper. Precipitated copper is made by putting clean iron plates in a solution of nitrate of copper—the sulphuric acid leaves the copper and attacks the iron. These powders are generally mixed with dry pulverized bone dust. A mixture of these powders with mucillage of gum arabic is used to give paper or wood a bronze appearance. All the bronze powders are made from mixtures of tin foil and brass and copper finely triturated. Copper will appear nearly red when dipped in a solution of nitric acid diluted with water. The copper must be quickly washed from the acid and dried in hot saw dust.

To Dye Silk a Gold Color.

Take any quantity of nitro-muriate of gold, and evaporate by exposing it to a gentle heat in a glass tumbler or phial; the gold will form itself in crystals on the bottom and sides of the vessel; collect these crystals and dissolve them in ten times their weight of pure water. Then put a gill of water into a common flask, and add one ounce of granulated zinc, and one fourth of an ounce of sulphuric acid. —Hydrogen gas will be evolved, and rise through the neck of the flask, which must not be stopped. Immerse a piece of white silk in the above mentioned aqueous solution of gold, and expose it, while wet, to the current of gas as it rises from the flask; the gold will soon be revived, and the silk will become beautifully and permanently gilt. Any letters or flowers may be drawn on the silk with a camel-hair pencil dipped in the solution, and on being exposed to the action of the gas, will be revived and shine with metalic brilliance. The silk must be kept moist with water till the gold is revived.

This is a mere ornamental operation, but nitric acid itself diluted with water and kept near the boiling point, will dye silk a beautiful, cheap and permanent salmon color. This is a simple process and a practical method.—Good colors are dyed upon silk in manufactories, by first dyeing the silk a light orange in a solution of annatto dissolved in soda, then washing the silk and running it through a strong bath of quercitron bark liquor and muriate of tin kept near the boiling point for some time. This process of dyeing gold and amber colors on silk is practical and makes a most brilliant metallic color.

Gutta Percha.

Gutta Percha may be readily dissolved, says the Pharmaceutal Journal, "in bisulphate of carbon in all proportions, and without the aid of heat. When a few drops of this solution are placed on the surface of any object, the carburet of sulphur evaporates with great rapidity, and leaves a thin layer of gutta percha, which acts as a preservative against the influence of air. On account of this, M. Vogel has employed this solution to cover wounds caused by a cutting instrument.

The carburet of sulphur, in evaporating, produces a sensation of cold in the skin, which acts as an antiphlogistic, and a reunion of the margins of the wound is readily effected.

We would observe that pure gutta percha is not fit to be used in any place where the temperature is above 60°. It then becomes soft.

THE SCIENTIFIC AMERICAN

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